

The American Fertilizer

Vol. 101

JULY 15, 1944

No. 1



• •
AMMONIUM NITRATE
•
SULPHATE of AMMONIA
•
ORGANIC AMMONIATES
•
SULPHUR
• •



*Foreign
and
Domestic*

ASHCRAFT-WILKINSON CO.

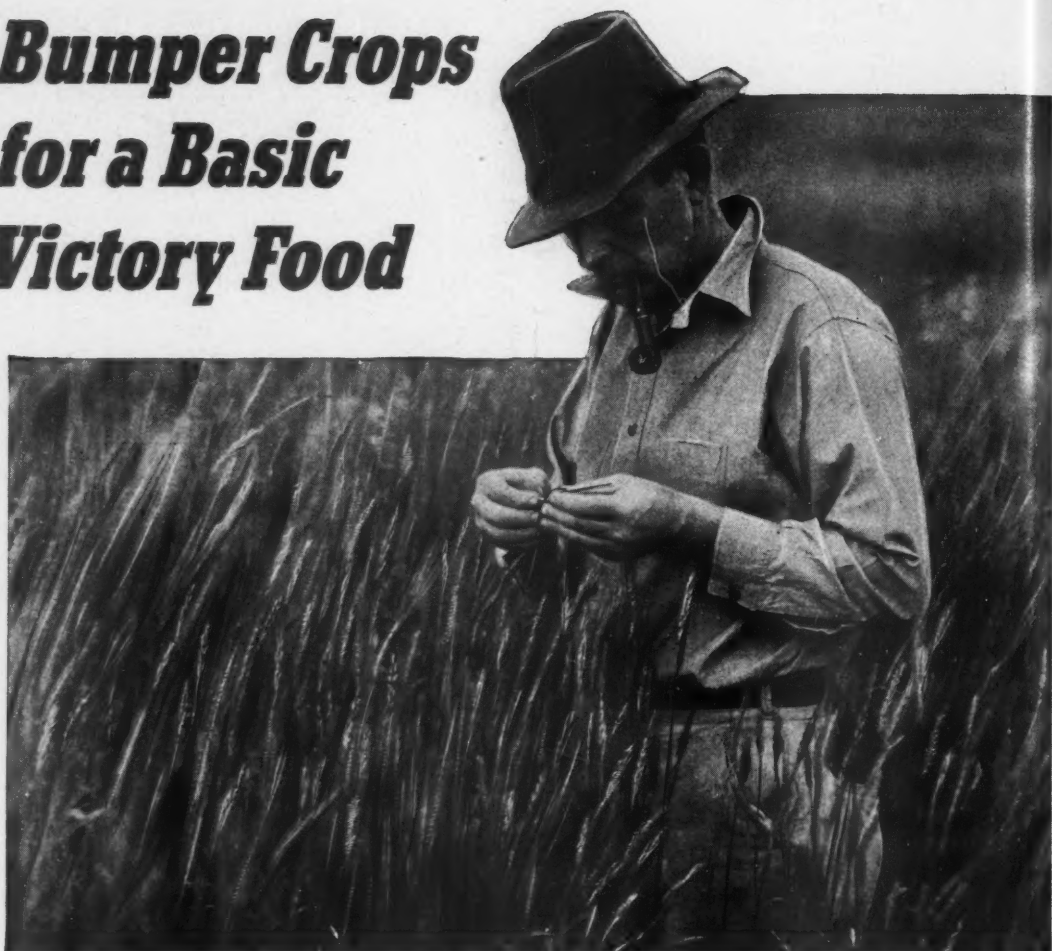
**VEGETABLE OIL MEALS
AND
FEEDSTUFFS**

Exclusive Distributors Duval Texas Sulphur

HOME OFFICE
ATLANTA, GA.
Cable Address: ASHCRAFT

OFFICES
**CHARLESTON, S. C.
NORFOLK, VA.**

Bumper Crops for a Basic Victory Food



This summer America's fields will produce thousands of tons of grain . . . grain for bread . . . one of the most important basic foods that feeds not only our own home and fighting fronts but those of our Allies as well. The credit for this tremendous victory crop goes to the nation's farmers . . . who depend on rich, fertile soil to help them raise enough grain to fulfill today's great need.



Aiding the "farm front generals" in their fight are your fertilizers . . . many of them compounded with potash. This vital plant nutrient increases their crops' resistance to disease and drought . . . helps to grow the bumper yields needed more than ever this year.

In this way Sunshine State Higrade Muriate of Potash, and the other grades you know, contribute directly to America's mighty Victory Food program.



HIGRADE MURIATE OF POTASH 62/63% K₂O GRANULAR MURIATE OF POTASH 48/52% K₂O MANURE SALTS 22/26% K₂O

UNITED STATES POTASH COMPANY

Manufactured by

40 ROCKEFELLER PLACE, NEW YORK CITY

A Complete Service

THE strategic factory locations of the American Agricultural Chemical Company, as shown on the accompanying map, assure prompt, dependable service for the complete line of products listed below.

We manufacture all grades of Commercial Fertilizers, Superphosphate, Agrinite Tankage, Bone Black, Bone Black Pigments (Cosmic Black), Dicalcium Phosphate, Monocalcium Phosphate, Gelatin, Agricultural Insecticides (including Pyrox, Arsenate of Lead, Calcium Arsenate, etc.), Trisodium and Disodium Phosphate, Phosphorus, Phosphoric Acid, Sulphuric Acid, Salt Cake; and we are importers and/or dealers in Nitrate of Soda, Cyanamid, Potash Salts, Sulphate of Ammonia, Raw Bone Meal, Steamed Bone Meal, Sheep and Goat Manure, Fish and Blood. We mine and sell all grades of Florida Pebble Phosphate Rock.



FACTORIES

Alexandria, Va.	Detroit, Mich.	Pensacola, Fla.
Baltimore, Md.	East St. Louis, Ill.	Pierce, Fla.
Buffalo, N. Y.	Greensboro, N. C.	Port Hope, Ont., Can.
Carteret, N. J.	Havana, Cuba	Savannah, Ga.
Cayce, S. C.	Henderson, N. C.	Searsport, Maine
Chambly Canton,	Montgomery, Ala.	South Amboy, N. J.
Quebec, Can.	Norfolk, Va.	Spartanburg, S. C.
Charleston, S. C.	No. Weymouth,	West Haven, Conn.
Cincinnati, Ohio	Mass.	Wilmington, N. C.
Cleveland, Ohio		

The AMERICAN AGRICULTURAL CHEMICAL Co.

50 Church Street, New York City

SALES OFFICES



Alexandria, Va.	Columbia, S. C.	Laurel, Miss.	Pierce, Fla.
Baltimore, Md.	Detroit, Mich.	Montgomery, Ala.	Port Hope, Ont., Can.
Buffalo, N. Y.	East St. Louis, Ill.	Montreal, Quebec, Can.	Savannah, Ga.
Carteret, N. J.	Greensboro, N. C.	New York, N. Y.	Spartanburg, S. C.
Charleston, S. C.	Havana, Cuba	Norfolk, Va.	Wilmington, N. C.
Cincinnati, Ohio	Henderson, N. C.	No. Weymouth, Mass.	
Cleveland, Ohio	Houlton, Me.	Pensacola, Fla.	

FLORIDA PEBBLE PHOSPHATE ROCK

PHOSPHATES FOR A VICTORY CROP

This year, more than ever before, American farmers need phosphates to grow bigger, better crops to feed America and her allies. Phosphate fertilizers are particularly important in "high vitality" war-crop production. With our background of 38 years in producing phosphate rock we are well prepared to meet wartime needs of the fertilizer industry for this essential plant food source. Because our experience includes the mining and preparation of all grades of Florida phosphate rock we are in a position to render valuable service to fertilizer manufacturers.



THE PHOSPHATE MINING CO.
110 WILLIAM STREET, NEW YORK • NICHOLS, FLORIDA



AMERICAN POTASH and CHEMICAL CORPORATION

122 East 42nd St.

New York City

Pioneer Producers of Muriate in America

Branch Offices

214 Walton Building
ATLANTA, GEORGIA

542 Conway Building
CHICAGO, ILLINOIS

609 South Grand Avenue
LOS ANGELES, CALIF.

MURIATE and SULPHATE of POTASH

Plant foods are urgently needed to grow the crops which feed our nation and our armed forces.

Our plant at Trona, Calif., is operating at capacity to provide supplies of these essential plant foods, and other materials needed in the national effort.

Manufacturers of Three Elephant Borax and Boric Acid

See page 23



... THE ...

AMERICAN FERTILIZER

"That man is a benefactor to his race who makes two blades of grass to grow where but one grew before."

Vol. 101

JULY 15, 1944

No. 1

Cooperation Between Chemicals and Fertilizers Branch, Office of Materials and Facilities, and Industry*

By P. H. GROGGINS, *Chief, Chemicals and Fertilizers Branch*

IN ADDRESSING you on the subject of "Cooperation Between Chemicals and Fertilizers Branch, Office of Materials and Facilities, and Industry," I am confident that we are discussing a fact and not a theory. This fortunate situation stems largely from the fact that we are attached to a temporary war agency whose primary responsibility is to claim and direct the distribution of the chemicals needed for food production, protection, processing, and preservation. The harmonious relationship with the many industries we deal with may also be traced to our long experience in industry, which has given us an opportunity to view sympathetically its problems, as well as those which confront government, in their joint efforts to serve the farmers of the nation.

Official Responsibilities

Inasmuch as this cooperation between industry and our office is limited to certain activities, let me review our duties briefly. Administratively the Chemicals and Fertilizers Branch, Office of Materials and Facilities, War Food Administration, has the following major responsibilities:

1. We determine and develop requirements for fertilizer and fertilizer materials, insecticides, animal medicinals and biologicals, and miscellaneous chemicals, as needed by the War Food Program.
2. We conduct and organize surveys to determine requirements for chemicals for food production, crop protection, food processing and preservation, necessary for the War Food Program.
3. We press claims for such chemicals in

behalf of the War Food Administration and represent the War Food Administration on the WPB Chemicals Bureau Requirements Committee.

4. Within the limits of War Food Administration authority, we initiate and administer in accordance with the necessity, orders affecting the manufacture, processing, distribution, and use of fertilizers, fertilizer materials, insecticides, and other chemicals.
5. We maintain liaison with the WPB Chemicals Bureau and Industry in the exchange of current information concerning the availability of chemical supplies and translate into programs the distribution of available materials so as to effectuate the objectives of the War Food Administration.

Whether it is due to the support of industry or other causes, it is significant to note we now have virtually the same responsibility as we had in January, 1941, during the days of the National Defense Advisory Commission. At that time we concluded that we could best discharge our responsibilities of serving agriculture by seeking counsel and advice from industry regarding the production and distribution of chemicals needed by agriculture. Our decision was a fortunate one. More than three years of cooperative activity has demonstrated that through close and harmonious cooperation with industry we have successfully taken care of the chemical and fertilizer requirements of our farmers. If there are any doubting Thomases in the audience, it is suggested that they reflect upon the situation pertaining to other materials, and to problems

*An address at the meeting of The National Fertilizer Association, Atlanta, June 20, 1944.

which are less complex than producing and delivering the quantities and grades of fertilizers needed by our soils and crops.

Preparation of Requirements

Inasmuch as it is not practical for our six million farmers to have a personal representative in Washington, the Chemicals and Fertilizers Branch must function as their claimant. In so doing our first task is to determine national, regional, and seasonal requirements. With respect to fertilizers, we start by making preliminary calculations of requirements, based on information pertaining to crop goals furnished us by the WFA Office of Production, as well as data pertaining to rates of application for crops recommended by the state agronomists. These estimates are modified and adjusted in line with information obtained from the Fertilizers Research Division, U. S. D. A., Bureau of Plant Industry, and the National Fertilizer Association. The estimates are then considered in the light of representations made by special emissaries to take care of regional dislocations. They are then realistically appraised by our WFA Fertilizer Industry Advisory Committee, whose judgment regarding farmer demand has been consistently accurate. Finally, we consider the estimates on requirements supplied us by the Office of Production, War Food Administration, which in general call for larger supplies. In fairness to our Fertilizer Industry Advisory Committee—which in the minds of many in your industry is responsible for our programs—when we submit claims which differ from their estimates, we so advise our WFA colleagues and the War Production Board. This is understandable when consideration is given to the responsibilities of the AAA and Office of Production for achieving success in our food production programs.

Action as a Claimant

After ascertaining our requirements our next responsibility is the preparation of a brief which we can use in making representations to the War Production Board in support of our claims. This is an important matter and we make every effort to have adequately documented statement of requirements. Whenever practical, we endeavor to indicate in terms of bushels of grain, tons of fruit, or dollars, the loss to agriculture and to farmers in the event we are denied the necessary supplies. When we can indicate clearly and graphically what a claim means in terms of dollars, loss of livestock, or lower food and fiber production, we are on our way to estab-

lishing a successful claim. It is appropriate to note that with respect to our claims for fertilizer materials, the endorsement of our WFA Fertilizer Industry Advisory Committee has considerable weight in obtaining recognition for our requirements.

Chemicals and Fertilizers Branch as a Quartermaster Corps

In our working relationships with other agencies of the War Food Administration, particularly with the Office of Production and the Agricultural Adjustment Agency, we serve as a Quartermaster Corps. Our job is to claim and arrange for the delivery of the necessary chemicals to the production fronts. As you know, the Army Quartermaster has only limited authority with respect to the stipulation of combat requirements, these data being supplied by G. H. Q. which in turn is influenced if not guided by the Commanding General on the fighting front. Similarly, we must be guided by the recommendations of those WFA officials who are responsible for the establishment and fulfillment of production goals. However, the Quartermaster because of his knowledge of supply situations and the essentiality of competitive claims must exercise judgment and make decisions in accordance with assigned responsibilities.

Program for Distribution

After establishing a successful claim, we are obligated to furnish the War Production Board with formal, detailed programs of distribution of the allotted materials. This program gives consideration to crops, areas and seasons. It also recognizes the need of allocating materials for mixed goods and direct application. In any event, the distribution of fertilizer materials, insecticides, and other chemicals, is effected through customary commercial channels. *It is our policy to avoid interfering with our democratic system of distribution.* We know if we are successful in establishing a claim which will meet the requirements of agriculture and the demands of farmers, we can obviate the necessity of rationing or other forms of government supervised distribution. It is also recognized that the smooth functioning of a distribution program depends to a large degree on its flexibility. In this connection, credit should be given to the War Production Board for its understanding cooperation in implementing and administering our program so as to take care of the multitudinous problems which are expected to arise in the complex problem of providing our nation's farmers with the necessary chemicals.

Our fertilizer order WFO-5 constitutes no hardship either to the farmer or dealer, although it may be irksome to many in these days of labor shortage. The order has—to the credit of the fertilizer industry—permitted us to take care of our nation's fertilizer requirements with a minimum of bothersome complaints. It has permitted us to direct the flow of materials in accordance with a changing pattern of crop production. We have been able, with virtually no red tape, to effect the equitable distribution of upwards of 12,000,000 tons of fertilizers during the 1943-44 season. In the distribution program the responsibility of insuring that all consumers get their equitable share of available materials is placed on industry. We have found that industry has been more than agreeable to shoulder this responsibility in order to demonstrate that the basic economic system which is one of the things for which we are fighting to preserve can function satisfactorily either in peace or war.

In working out our distribution program, the Fertilizer Industry Advisory Committee has always played an important role. Because we have collaborated closely with the Committee in phrasing the fertilizer order, we have found that fertilizer manufacturers and distributors have felt a sense of responsibility in insuring the success of such orders. We have ample evidence of such cooperation in our files. Our records show that our fine working relations with industry have resulted in the appropriate and equitable distribution of fertilizer materials during the past two years. Where slight troubles have been experienced, these have been quickly rectified and it is to be noted that such dislocations were due largely to inadequate provision being made for gradual or sudden changes in agricultural practices. It is hoped that our 1945 program will correct errors of judgment which have appeared during the past season.

Role of Fertilizer Industry Advisory Committee

Our Fertilizer Industry Advisory Committee serves us in many important ways:

1. By advising us on probable farmer demands for fertilizer in each area;
2. By advising us on seasonal requirements and sectional manufacturing practices;
3. By advising us how best to use fertilizer materials which are available;
4. By supporting claims which they have recommended;
5. By aiding us in writing our fertilizer order, thus avoiding the imposition of impractical and unnecessary restrictions;

6. By warning us in advance of national and regional needs for new production facilities.

The last item warrants some elaboration. The Committee members, because of their experience and vision, know to what extent new production facilities will be needed in order to take care of record wartime requirements for fertilizers. We recall, back in 1941 before Pearl Harbor, that representatives of your industry, acting in an advisory capacity to us, passed a resolution requesting the Secretary of Agriculture to recommend to the Under Secretary of War to undertake a great expansion program for the production of sulphuric acid. Had that resolution not been so timely, we might have had serious problems in obtaining sufficient sulphuric acid for the production of superphosphate during the past two seasons. At that time the demands for sulphuric acid for the production of explosives were great, and unless rapid expansion in sulphuric acid production occurred, the impact upon the fertilizer industry would have been extremely serious.

We would be indeed ungrateful if we did not here acknowledge the invaluable assistance rendered our office by the Fertilizer Industry Advisory Committee. As representative of the entire industry their record of constructive work is impressive. The historian who later examines the reports of hard working sub-committees, and the recommendations of the whole Committee, will realize the magnitude of the public spirited contributions made by these men. Although we appreciate and here acknowledge that their aid has resulted in a smoothly functioning fertilizer distribution system, you gentlemen of the fertilizer industry should also reflect and appreciate how much this Industry Advisory Committee has done to permit you to obtain your equitable share of materials and to operate with a minimum of regulation and inconvenience.

My personal conviction resulting from many contacts with members of the fertilizer industry who have come to Washington is that those in government and in industry are equally patriotic in their motives and actions. They are just as anxious as we to develop sound and practical programs which will insure to farmers their equitable share of supplies. We merely give industry the opportunity to do the job they know how to do well. We feel that by such a policy we will get along satisfactorily with a minimum of interference with industrial practices.

Our experience in working with a large number of industries and depending on

several industry advisory committees for guidance confirms our opinion that industry is only too ready to cooperate notwithstanding its ingrained aversion to bureaucracy. Our good fortune may be attributed to the fact that we consider our job merely a wartime activity and have no desire to perpetuate our authority or to use the emergency as an opportunity or excuse to introduce or foster new social or economic theories or programs. As indicated earlier, we merely want to obtain and deliver the chemicals needed to achieve our production goals. In this we feel that the advice and service of industry are indispensable.

Our contacts with industry lead us to believe that business management wants to discharge its wartime obligations but at the same time it is anxious to have the assurance of government:

1. That a definite life tenure limitation be placed on war-created bureaus by providing for their liquidation within a reasonable period after the jobs for which they are created are finished;
2. That the free flow of raw materials for civilian production be restored to private enterprise as soon as practical after the war;
3. That government financed, subsidized and tax-exempt enterprises which are in competition with private enterprise be eliminated as soon as their continuation as war projects becomes unwarranted.

Assurances Regarding Future Relations

If assurances are necessary, we want to assure you at this time that we have no plans or programs to perpetuate any control over the activities of the fertilizer industry. We want merely to fulfill our wartime responsibilities as a claimant agency. In fulfilling our responsibilities, we have until now benefited by the cooperation of your industry and we want a continuation of this assistance until the job is finished.

But deeds are more convincing than words, so it is appropriate to note that our office has a record of concrete actions evidencing our sympathetic cooperation with industry.

Establishing Essentiality of Fertilizer Industry

You are all familiar with the action of the War Food Administration in getting fertilizers established as essential materials and your activities recognized as an essential industry. We hope that you will concur that this has been a beneficial action constituting a fundamental acknowledgment of the important role your industry plays during wartime.

Transfer of Control of Approved Grades

Recently we addressed letters to the state agronomists and control agents requesting that consideration be given to the problem of continuing the list of approved grades after the war. We have suggested the probability of revoking WFO-5 as soon as circumstances warranted and pointed to the desirability of having integrated state autonomy in such matters. These actions clearly indicate our thinking. We can visualize the dropping of the curtain on our wartime act, and we hope the performance has been satisfactory.

The Fertilizer Industry Transportation Conservation Program

Under Amendment 100 to OPA Ration Order 5-C, the Chemicals and Fertilizers Branch was authorized to issue certificates to representatives of fertilizer companies for special mileage rations to be used in connection with the transportation conservation program undertaken by the industry and sponsored jointly by OPA, ODT, and WFA.

A total of 652 applications were received while the certification procedure was in effect, of which 95 were disallowed or denied, and 557 were approved for a total of 2,094,604 miles. This represents an average of 3,760 miles per application.

While the program has been generally recognized as being beneficial and a number of letters have been received from members of the industry pointing to some of the interesting results, it is necessary, in order to fulfill our obligation to ODT and OPA, to submit a factual report showing what was actually accomplished.

It has been suggested that steps be taken to put a similar program into effect for the coming fall season. This proposal has been informally discussed with the Eligibility Section of the Gasoline Rationing Division of OPA. We are confident that such a plan will be given due consideration, but no easy task is involved in obtaining official approval. Two facts will have to be established: (1) that there is an actual need for the special ration, and (2) that the spring program accomplished savings in gasoline and the increased efficiency in the utilization of highway and rail which were contemplated.

Area Production Urgency Committees

According to an administrative order just released by Mr. Marvin Jones, agencies of the War Food Administration will upon request of our Office of Labor designate an employee

(Continued on page 26)

The Potash Problem in Illinois¹

By R. H. BRAY

Department of Agronomy University of Illinois, Urbana, Illinois

(Continued from the June 17th Issue)

The Potash Requirement

How about the K_2O or potash requirement for these different levels of available potash? Table 2 gives the K_2O requirements for different crops for different test values.

Corn, of course, has the highest requirement for added potash, compared to beans and wheat, just as it had the highest requirement for soil potash.

For any soil-test value the requirement given for any crop is not the requirement where that crop is the only crop in rotation which is to receive potash. If you want to get the full increase for corn on the 55-pound soil, you cannot expect to get it by using 72 pounds of K_2O as muriate of potash on the corn crop alone and not treat the other crops in the rotation. The way to use Table 2 is to list the crops in your rotation, after each crop put its K_2O requirement, then add the requirements together to obtain the rotation

figuring the K_2O at five cents per pound. A simple inspection should be ample to show whether or not potash use will be profitable. You do not know what corn may be worth next year, but you do have a general idea; you also know approximately what fertilizer prices will be. All that is left for you to do is pick out on this table the soil-test value for one of your own fields, select the approximate average yield in column 3 nearest to the yield which has been obtained on this field in the past, and reach your own decision as to whether or not you are interested in using potash.

I do not guarantee that you will get exactly this increase in yield for any one year, but unless the results from all 23 experiment fields in Illinois are not to be trusted, you should average approximately this increase over a period of years of consistent potash use. The yield level each year is controlled by climate, but even the climatic effect is averaged out over a period of years.

Now you can see that we are not ignoring the other nutrient deficiencies or the physical nature of the soil type. The farmer's average yield in the past is itself both a measure and a result of these deficiencies. Also, the final yield in column 4 of Table 3 is still not necessarily the maximum yield obtainable unless the base yield you select (column 3) was obtained when all other deficiencies except potash had been corrected. It is the maximum yield obtainable by adding only potash to the soil management program already in effect. I will not show the tables for legumes, soybeans, wheat, or oats. They illustrate the same thing which this table illustrates for corn.

It has already been said that we can apply the potash test interpretation without knowing the phosphorous status of the soil. However, where phosphorous is also deficient, it is usually more practical to apply both at the same time. The potassium test is not the only test which can be interpreted in terms of per cent yield and nutrient needs. The new fluoride soil test for phosphorus (Method

TABLE 2. POTASH—TABLE OF VALUES FOR THE CALCULATION OF THE K_2O ROTATION REQUIREMENT

Lbs. K/acre by test (available K)	K_2O Requirement† yearly			Rotation* Corn oats clover wheat 4 years
	Corn legumes	Soy- beans	Wheat (oats)	
	Lbs./A	Lbs./A	Lbs./A	Lbs./A
55	72	44	28	200
73	65	37	20	170
95	56	28	12	136
109	50	23	..	100
127	43	16	..	86
150	34	..	..	68
182	22	..	..	44
236	..	..	..	..

* The sum of the yearly requirements for each crop in a rotation equals the rotation requirement. This column illustrates a 4-year rotation of corn, oats, clover, and wheat or $72 + 28 + 72 + 28 = 200$ pounds of K_2O for the 55-pound test value to be applied over a period of 4 years.

† The potash content of a fertilizer is expressed as K_2O . For example, 88 pounds of muriate of potash (KCL containing 50 per cent K_2O) will meet the requirement for 44 pounds of K_2O .

requirement (see Table 2). The prospective increase in yield given in Table 1 is dependent on using the full rotation amount consistently over a period of years. Using less than the rotation amount will, of course, be just as profitable per unit of potash used, but it will not produce the full increase in yield which could be obtained. With potash supplies limited as they are today, we will have to be satisfied with using less than the rotation requirement. Biggest returns from potash use under war conditions will come from allocating relatively more potash to the soils testing low in potash, provided such soils are otherwise capable of producing satisfactory yields.

The last column in Table 2 illustrates the full rotation amount for each test value for a four-year rotation of corn, oats, wheat, and clover.

The Practical Application

Table 1 gives the per cent yield obtainable for several soil-test values for available potassium. From these values can be calculated the actual increase in yields which may be expected from the use of adequate amounts of potash fertilizer. If, for example, you have been obtaining yields of 30 bushels of corn per acre on a soil testing 95 pounds or 74

per cent sufficient in potash, i. e., it is giving a 74 per cent yield, then the use of adequate potash will increase the yield from 30 bushels (74 per cent) to about 40 bushels (100 per cent). According to Table 2, the K_2O requirement for corn for such a test value is 56 pounds of K_2O per acre. This means that an investment in 56 pounds of K_2O per acre should increase the average yields of corn on this soil by about 10 bushels per acre. These are most of the facts necessary for the economic interpretation of the potash test. An estimate of probable crop values and the cost of the fertilizer are the additional facts necessary.

Table 3 illustrates the practical use of Tables 1 and 2. Here we have the soil-test value in column 1 and the per cent yield in column 2. Then for each soil-test value we have a series of different yield levels to fit different cases which represent the average yield of different farms in the past. Next comes the yield of corn expected when potash is used in the full amount required for a rotation, and next is the bushels increase. Last comes the K_2O requirement and the cost when applied as muriate of potash at current prices, No. 2) published about two years ago, is also sufficiently accurate to be interpreted in ex-

(Continued on page 22)

TABLE 3. POTASH—TABLE OF ORIGINAL YIELDS, EXPECTED INCREASES, AND POTASH REQUIREMENTS FOR CORN ON SOILS VARYING IN AVAILABLE POTASSIUM*

Lbs. K/acre by test (available K)	Per cent yield	Farmer's average corn yield in past	Farmer's average corn yield in future	Bushels increase for potash use	K_2O require- ment Lbs./A	Cost as KCl
55	53	25	47	22	72	\$3.60
		30	57	27		
		40	76	36		
		50	94	44		
73	63	25	40	15	65	\$3.25
		30	48	18		
		40	63	23		
		60	95	35		
95	74	25	34	9	56	\$2.80
		30	40	10		
		40	54	14		
		60	81	21		
127	84	25	30	5	43	\$2.15
		30	36	6		
		50	60	10		
		70	83	13		
150	90	25	28	3	34	\$1.70
		50	55	5		
		80	89	9		
		100	110	10		

*Where the full rotation requirement for K_2O is used and nitrogen is not seriously deficient.

IT MAY BE

By SAMUEL L. VEITCH

TRADE AGREEMENTS

It may be, secret trade agreements between the United States and Great Britain may point to a trend proposed for post-war foreign trade. The existence of these secret trade agreements recently have been admitted by government officials. These agreements have been made by the Combined Production and Resources Board, composed of one representative each from the United States, Great Britain and Canada. It seems President Roosevelt and Prime Minister Churchill created this board June 9, 1942. The Board has created export zones for several industries for Britain, Canada and other British possessions and the United States. What zones and what industries are affected is one of Washington's most cherished secrets, but the industrial leather belting industry has recently been brought to light as being one that is definitely included. These pacts are attributed to high official quarters and they admit that even in this early stage of events, they are being caused embarrassment. Here is how most of the embarrassments occur: a certain government agency (FEA to be more specific) will deny existence of any agreement concerning leather belting, only to find that somewhere along the line there does exist some such agreement and had been approved by the powerful but little known Combined Production and Resources Board. This Board having one representative each from Canada, Britain and United States exercises a working majority of two to one against the American member in any controversy. Sort of a "heads I win, tails you lose" set-up. The irony of this "ring-around-the-rosy" is that only recently the United States Treasury loaned India 100,000,000 ounces of silver. Now India can buy leather belting from Britain through an agreement prohibiting United States exporting belting to India. Hi, neighbor!

ALL TIME RECORD

Recently, Marvin Jones, high man in War Food, completed one year as head of that department. This is the longest anyone has held the job.

CIVILIAN CONVERSION

There seems to be some difference of opinion between Donald Nelson and top military men. The latter group feel that it would be harmful to war production to permit civilian goods to be manufactured no matter how small the scale. They believe civilians may quit war jobs for jobs with post-war opportunities. Mr. Nelson is not of the same opinion, and having strong convictions he is right, may release certain commodities and permit some manufacturers to order machine tools. With this opinion divided, a major scale fight may develop between Mr. Nelson and Army and Navy, whereby it will be necessary for the President to act as referee, and it may be, the President will side with Mr. Nelson.

ALCOHOL FROM GRAIN

The liquor fraternity is expected to use seven million bushels of rye for the making of alcohol, which is part of the ten million bushels Commodity Credit wants to liquidate. It is claimed that no corn will be used in the making of liquor (looks like someone overlooked the South). If it means anything to you, you can almost make a sure bet that about two million bushels of corn will go into the making of alcohol by early fall.

"WHAT HATH GOD WROUGHT"

The one hundredth anniversary of the first telegraph message, "What Hath God Wrought," was recently celebrated in the Capitol at Washington. A little anecdote shows what far reaching effects in unexpected places certain incidents may have. Samuel Morse was painting a portrait of General Lafayette, in the White House, when a servant came into the room and handed him a letter informing him his wife had died a week before. She had already been buried. As he picked up his brush and grimly walked back to his easel, he solemnly determined that he would do something to provide quicker means of communication. Morse turned inventor, telegraphy being the result.

THE AMERICAN FERTILIZER

ESTABLISHED 1894

PUBLISHED EVERY OTHER SATURDAY BY

WARE BROS. COMPANY

1830 VINE STREET, PHILADELPHIA, PA.

A MAGAZINE INTERNATIONAL IN SCOPE AND CIRCULATION
DEVOTED EXCLUSIVELY TO THE COMMERCIAL FERTILIZER
INDUSTRY AND ITS ALLIED INDUSTRIES

PIONEER JOURNAL OF THE FERTILIZER INDUSTRY

WARE BROS. COMPANY

PUBLISHERS

1830 VINE STREET PHILADELPHIA, PA.

A. A. WARE, EDITOR

ANNUAL SUBSCRIPTION RATES

U. S. and its possessions, also Cuba and Panama.....	\$3.00
Canada and Mexico	4.00
Other Foreign Countries	5.00
Single Copy .....	.25
Back Numbers .....	.50

THE AMERICAN FERTILIZER is not necessarily in accord with opinions expressed in contributed articles that appear in its columns. Copyright, 1944, by Ware Bros. Company.

Vol. 101

JULY 15, 1944

No. 1

Principal Articles in This Issue

COOPERATION BETWEEN CHEMICALS AND FERTILIZERS BRANCH, OFFICE OF MA- TERIALS AND FACILITIES, AND INDUSTRY	5
THE POTASH PROBLEM IN ILLINOIS (<i>Con- tinued</i>)	9
IT MAY BE	11
Bill Introduced to Extend Government Fertilizer Business	12
Restrictions Lifted on Almost All Nitro- genous Fertilizer Materials	13
Tax Tag Sales for the Fiscal Year	14
FERTILIZER MATERIALS MARKET:	
New York	15
Baltimore	17
Tennessee Phosphate	17
Chicago	19
Charleston	19
Florida Phosphate Rock Ceiling Raised	20
Cotton Acreage Drops	20

Bill Introduced to Extend Govern- ment Fertilizer Business

A bill to extend the government's participation in the fertilizer manufacturing business has been introduced in the Senate by Senator Lister Hill, of Alabama. The bill (S. 2035) directs the Tennessee Valley Authority to prepare within six months a program to "increase the amount of fertilizer available to farmers, improve the quality, and lower the cost." While the immediate object of the bill is to complete construction of a government superphosphate plant at Mobile, Ala., a study is also to be made of the advisability of building other plants in the Western phosphate and potash areas, and in the Florida phosphate field. The bill has been referred to the Committee on Agriculture.

The Mobile plant has been held up by the refusal of WPB to grant priorities on materials. Under the Hill bill TVA could acquire phosphate lands in Florida to provide the plant with raw material for fifty years.

In order to improve and cheapen the production of phosphatic fertilizers and materials and to promote the widespread use of such products at low cost to farmers, TVA is directed to operate the Mobile plant for an interim period of not less than five years at as near full capacity as reasonably possible, and to distribute the production in this manner:

Fifty per cent shall be utilized to augment the authority's farm test demonstration program.

The remainder of such products shall be sold and distributed on a commercial basis with preference in sales given to bona-fide farmers' cooperatives.

At the end of the five-year period, TVA would lease the plant to a bona-fide farmers' cooperative organization for a term not to exceed fifty years upon the following terms:

That the properties shall be used exclusively for the manufacture of phosphatic fertilizers and other phosphatic materials for agricultural purposes, and, where consistent, for the production or processing of by-products resulting from such manufacture.

That the lessee will keep the properties in first-class condition.

That the lessee will confine its sales of fertilizers and materials for agricultural purposes to farmers and farm cooperative organizations, except for sales otherwise authorized.

That sufficient supplies will be made avail-

able to the Office of Extension for use in demonstration programs.

The rental to be paid to the authority for use of the properties is, to be fixed at such amount as appears suitable to carry out the intents and purposes of the act.

The bill also provides for studies on the continued use of War Department nitrogen plants for the manufacture of all kinds of fertilizers, and on a system of distribution which would deliver these goods to farmers at cost prices.

Restrictions Lifted on Almost All Nitrogenous Fertilizer Materials

The War Food Administration has announced that on July 1, 1944, it would eliminate restrictions on the acquisition and use of all organic nitrogenous fertilizer materials except edible oil-seed meals.

WFA revoked War Food Order No. 12 (originally known as Food Production Order No. 12) and issued WFO-105. Both actions took effect July 1st.

War Food Order No. 12 will have been in effect exactly one year. In line with the WFA policy of eliminating restrictions as soon as they become unnecessary, the order applying to oil-seed meals only is replacing the general order.

Under the new order, patterned after the provisions of the old, any person who wishes to acquire edible oil-seed meals which may be available for use as fertilizer is required to obtain permission from the Director, Office of Materials and Facilities, War Food Administration.

The amount of edible oil-seed meal available for fertilizer purposes is restricted because of heavy requirements for livestock feed. However, fertilizer manufacturers and consumers who used edible oil-seed meals in the 1941-42 season may, by applying on or before September 30, 1944, receive a proportionate share of the meals available for use as fertilizer in 1944-45.

The new order also contains provision governing the distribution for fertilizer use of edible type oil-seed meals which are of inedible quality.

The broad order—WFO-12—is being revoked, officials said, because:

1. Government and industry know the supply situation of organic nitrogen with greater certainty than they did a year ago.

2. A distribution procedure has been devised whereby fertilizer manufacturers can obtain organic nitrogenous materials in 1944-

45 under practically the same general conditions which prevailed last year. Arrangements have also been made to alleviate inequities in distribution which might occur.

WFO-12 was issued mainly because of uncertainty over supplies of several organic nitrogenous materials. The order restricted the acquisition and use of such materials as fertilizer to 70 per cent of the amount (in terms of nitrogen) acquired and used in the base period, July 1, 1941, to June 30, 1942. Subsequently this percentage was raised to 80 per cent.

Obituary

Frank H. Whipple

Frank H. Whipple, president of Olds & Whipple, Inc., Hartford, Conn., died on June 30th in his 89th year. Mr. Whipple, who was a native of Massachusetts, helped to organize the Olds & Whipple concern in 1877 and has thus been engaged in the fertilizer business for almost 67 years. He was also president of the Otee Tobacco Company and the Claremont Company, and a director of the Hartman Tobacco Company.

Mr. Whipple contributed in large measure to the development of the fertilizer industry. He was a member of the Board of Directors of the National Fertilizer Association from 1929 to 1934 and also served for a number of years as chairman of District 1. He is survived by two sons, Frank A. Whipple and Merle W. Whipple (vice-president of Olds & Whipple, Inc.) and by a daughter, Mrs. Marion W. Mackay.

William Catesby Jones

William Catesby Jones, head of the division of chemistry of the Virginia Department of Agriculture, died on July 10th after an illness of several weeks. He was 63 years old. He was a graduate of Virginia Polytechnic Institute, class of 1900.

Mr. Jones had been employed in the State Department of Agriculture since 1915 except for two years during World War I when he served as a major in the Chemical Warfare Service. He had been chief of the division of chemistry since 1930. He was for many years active in the work of the Association of Official Agricultural Chemists, especially as a member of the committee on fertilizer definitions and interpretations. He was nationally known among agricultural chemists and in the fertilizer industry.

Tax Tag Sales for the Fiscal Year

Fertilizer consumption in the twelve months ended June 30th, as indicated by the sale of fertilizer tax tags in 17 States, reached a new fiscal year peak. Tag sales indicated a consumption in the 17 reporting States of 7,600,000 tons, representing increases of 13 per cent over 1942-43 and 28 per cent over 1941-42.

Sales were larger in 1943-44 than in the year preceding in all of the States except

Arkansas, where a moderate decline was registered. Florida reported the largest gain in tonnage, which was up 165,000 tons.

In the January-June period of 1944 tag sales were a little below the sales in the comparable period of 1943. This reflected the earlier buying this year, which had pushed a considerable part of the buying for this spring forward to the late months of 1943. As shown by the following tabulation, sales in the last half of the calendar year 1943 were abnormally large.

	1938-1939	1939-1940	1940-1941	1941-1942	1942-1943	1943-1944
July-December.....	907,315	938,395	940,569	1,098,240	1,355,826	2,282,350
January-June.....	4,478,382	4,555,100	4,827,562	4,840,432	5,392,813	5,318,844
Total fiscal year.....	5,385,697	5,493,495	5,768,131	5,938,672	6,748,639	7,601,194

FERTILIZER TAX TAG SALES

JULY-JUNE

STATE	1938-1939 Tons	1939-1940 Tons	1940-1941 Tons	1941-1942 Tons	1942-1943 Tons	1943-1944 Tons
Virginia.....	418,982	396,772	400,047	416,231	423,574	497,911
North Carolina.....	1,207,654	1,084,721	1,095,327	1,194,175	1,292,655	1,384,789
South Carolina.....	672,753	678,449	712,115	659,412	802,498	813,548
Georgia.....	736,179	736,836	793,601	788,111	988,191	1,062,629
Florida.....	547,686	582,667	612,230	689,073	702,055	867,568
Alabama.....	552,600	576,350	578,050	571,350	640,200	707,400
Mississippi.....	293,478	345,010	342,455	333,976	428,575	456,526
Tennessee.....	133,911	135,112	148,387	163,064	214,723	246,362
Arkansas.....	70,822	102,600	119,650	140,950	153,583	139,873
Louisiana.....	150,046	169,673	171,474	168,986	181,443	205,110
Texas.....	92,738	116,758	133,354	133,608	153,881	192,305
Oklahoma.....	7,533	6,872	10,790	11,386	16,494	17,586
Total South.....	4,884,382	4,931,820	5,117,480	5,270,322	5,997,872	6,591,607
Indiana.....	265,053	299,213	345,264	342,355	431,714	474,084
Illinois.....	42,648	50,079	62,101	78,838	86,905	141,031
Kentucky.....	111,201	123,715	124,799	140,736	144,952	230,872
Missouri.....	66,421	73,044	97,701	86,511	78,783	127,065
Kansas.....	15,992	15,624	20,786	19,910	8,413	36,535
Total Midwest.....	501,315	561,675	650,651	668,350	750,767	1,009,587
Grand Total.....	5,385,697	5,493,495	5,768,131	5,938,672	6,748,639	7,601,19

BRADLEY & BAKER

FERTILIZER MATERIALS - FEEDSTUFFS

AGENTS - IMPORTERS - BROKERS

155 E. 44th Street
NEW YORK

BRANCHES
 Clinton St. & Danville Ave. 505 Royster Building 1252 West Beaver Street
 Baltimore, Md. Norfolk, Va. Jacksonville, Fla.
 504 Merchants Exchange Bldg., St. Louis, Mo.

FERTILIZER MATERIALS MARKET

NEW YORK

Demand for Fertilizer Materials Slackens Somewhat but Price Levels Remain Unaffected. Higher Ceilings on Phosphate Rock and Superphosphate. Freer Market in Organics Expected.

Exclusive Correspondence to "The American Fertilizer"

NEW YORK, July 14, 1944.

There has been an easing up of demand for various fertilizer materials by mixers and indications point to greater supplies for the current year than have existed since the commencement of world hostilities. General price levels have not been affected nor is there any anticipation that lower prices will prevail. The general opinion appears to be that maximum levels have about been reached.

Phosphate Rock

OPA recently raised their ceilings, which resulted in an average against various grades of an advance of about 20 cents per gross ton. This material is still in heavy demand and no surpluses have developed.

Triple Superphosphate

Because of the increase in raw material costs, OPA has authorized an advance in this market by the producers of an average of 1 cent per unit, basis f.o.b. shipping point. The labor factor in the production of these materials is still serious, and plants have had difficulty keeping their productions up to normal to supply the still heavy demand.

Sulphate of Ammonia

Price remains at ceiling levels. Demand is active but most manufacturers have been able to cover their needs for the current period.

Potash

Prices remain at ceiling levels and from present indications fertilizer manufacturers needed will secure quantities for their production program covering the 1944-1945 season. Increased production by some of the principal manufacturers has eased the supply situation to the point where it is anticipated that all domestic needs, as well as Lend-Lease needs, can be taken care of.

Tankage

The addition of some import material to domestic market supply has resulted in a generally freer market. Buyers are somewhat cautious in their purchases, anticipating possible lower prices in the future.

Nitrate of Soda

Market firm at OPA levels. Demands continue regular and expectations for imports this season would indicate the tonnage approximately level with imports of the previous season.

Bone Meal

Relatively heavy shipments of late have resulted in buyers holding off purchase of this material in anticipation of possible lower prices, all depending upon whether the feed trade will take all available tonnages or allow surplus to accumulate for distribution to the fertilizer industry. For the first time in many months this product seems to be in good supply.

Sulphur

Heavy stocks above ground at the several mines continue to take care of demands and it is fully anticipated that production will continue to meet all demands made upon the producers. Price remains at regular levels, as has been the case for several years past.

Organics

War Food Administration has revoked order WFA-12 and has issued a new order under WFA-105, effective July 1st. Under the new directive, fertilizer manufacturers should be able to obtain their requirements of nitrogenous in the new season in about the same proportion and under the same general conditions under which they secured material during the season just closed. This means as more or less free market in organics.



FERTILIZER MATERIALS

Let us Quote
on **YOUR**
Requirements

PHOSPHATE ROCK
SUPERPHOSPHATE
DOUBLE SUPERPHOSPHATE
SULPHURIC ACID
BONE MEALS
DRIED BLOOD
TANKAGES
BONE BLACK
SHEEP MANURE
PIGMENT BLACK
SODIUM FLUOSILICATE

ARMOUR FERTILIZER WORKS

General Offices: Walton Building, Atlanta 3, Ga.

Division Sales Offices:

Albany, Ga.
Atlanta, Ga.
Augusta, Ga.
Baltimore, Md.
Birmingham, Ala.
Chicago Heights, Ill.
Cincinnati, Ohio

Montgomery Ala

Columbia, S. C.
Columbus, Ga.
East St. Louis, Ill.
Greensboro, N. C.
Havana, Cuba
Houston, Texas
Jacksonville, Fla.

Wilmington, N. C.

Nashville, Tenn.
New Orleans, La.
New York, N. Y.
Norfolk, Va.
Presque Isle, Me.
San Juan, P. R.
Sandusky, Ohio

BALTIMORE

Between-season Lull Prevails. More Nitrate of Soda Expected to Be Used as Top Dressing. Advance in Superphosphate Price Expected.

Exclusive Correspondence to "The American Fertilizer"

BALTIMORE, July 11, 1944.

Business in fertilizer materials is going along in more or less routine manner, and the usual between-season lull is now on.

Ammoniates.—Organics seem to be easing up a little from the feeding standpoint, but the price is so high as to make them almost prohibitive for use in the manufacture of complete fertilizer.

Castor Pomace.—There are no offerings on the market, and business is practically at a standstill.

Fish Scrap.—Until producers have delivered the major portion of tonnage previously sold, they are marking time and not taking on additional business. In the meanwhile the spread between unground and ground fish is so small that most of the sellers prefer disposing of it in unground form, but the price is out of reach for fertilizer.

Sulphate of Ammonia.—Deliveries are coming through under allocations and manufacturers are building up supplies for next season.

Nitrate of Soda.—It is anticipated there will be a better demand for top dressing due to inability of many farmers to secure adequate supplies of complete fertilizer during the planting season. The market is unchanged and probably will continue at present shipping levels.

Superphosphate.—Due to the increased cost of raw material, it is anticipated that there will probably be a slight advance in price granted by OPA to induce producers to increase production.

Potash.—Manufacturers are now taking deliveries against new contracts for domestic potash and it would appear that there will

again be ample production to supply legitimate domestic manufacturing requirements.

Bone Meal.—There is nothing new and both raw and steamed bone meal continues scarce. The market is without any activity.

Bags.—The fall season is light and most manufacturers provided for paper bags to take care of the tonnage this year. Should there be any shortage of paper, burlap bags are again available for fertilizer purposes, and it is anticipated that next spring there will be an increased consumption of burlap bags for fertilizer as compared to the last two years.

TENNESSEE PHOSPHATE

Dry Weather Aids Mining and Some Farm Work but Crops Are Suffering from Drought. Rock Shipments to Continue at Peak.

Exclusive Correspondence to "The American Fertilizer"

COLUMBIA, TENN., July 10, 1944.

The dry weather has made it possible for farmers and outside phosphate workers to catch up to the extent that almost 90 per cent of the grain is threshed, all the tobacco is set and most of the corn given its last cultivation, but all crops and pastures are suffering terribly from the drouth.

Phosphate labor of all kinds is harder than ever to get, but shipments of finely ground phosphate for June were largest on record for that month and the largest for the first half of the year, and larger than any month during 1942 or 1943. Contrasted with the situation prevailing in ordinary fertilizer circles and even in the ground rock business up to three years ago, that everyone goes fishing in June and July, it is evident that farmers are rapidly learning to take ground rock whenever they can get it, while dealers recognize the advantage of a year-round business, instead of one or two months in the spring and one or two weeks in the fall.

Some of the large users are equipping themselves to unload bulk into storage and spread

Manufacturers' Sales Agents for **DOMESTIC**

Sulphate of Ammonia

Ammonia Liquor :: Anhydrous Ammonia

HYDROCARBON PRODUCTS CO., INC.

500 Fifth Avenue, New York

★ Interesting Facts about Another Industry through which Bemis Bags Serve Every American Family

How'd you like the State of IOWA as a Gift?

How'd you like the State of Iowa as a gift, with New Jersey, Connecticut, Massachusetts and Delaware thrown in for good measure? That's over 78,000 square miles... 50 million acres... enough land to produce one-fifth of all the food grown in the United States.

Well, the commercial fertilizer industry has, in effect, presented 50 million acres to the American people. How? By increasing the output of American farms by one-fifth... a volume that would, without commercial plantfood, require the cultivation of an additional 50 million acres.

But that's not all. The labor, ma-

chinery and other costs involved in planting, cultivating and harvesting 50 million acres of additional cropland would cost American farmers over a billion dollars a year... more than three times the present annual expenditure for fertilizer.

Farmers are not, of course, the only benefactors from this tremendous extra production of vegetables, grain, fruit, meat, tobacco and cotton. Think what that additional one-fifth, made possible by the fertilizer industry, means to the war program... and to every American family in keeping tables well filled and in lowering food prices appreciably.



Practically all commercial fertilizer is shipped in bags. In fact, fertilizer men will tell you that no other container is at all practical. The industry uses more than 150 million bags annually and Bemis has, for scores of years, served a large proportion of the 900 fertilizer companies in the United States.

Bemis makes cotton, burlap and paper shipping bags of almost limitless types and sizes for literally hundreds of different uses... and new uses are developing constantly. Almost everything you eat, wear or use may make at least part of its trip to you in a Bemis Bag.

THE SAME MONEY BUYS BOTH WAR BONDS AND VICTORY!

BEMIS BRO. BAG CO.

GENERAL OFFICES: ST. LOUIS



**Cotton, Burlap and Paper
Shipping Bags**

3 PLANTS THROUGHOUT THE COUNTRY

A well-deserved tribute to the fertilizer industry

Year after year, the Fertilizer Industry in the United States has contributed immensely to our country's welfare and prosperity. The public, principal beneficiary of this contribution, has not fully understood or appreciated this fact. To help give a better understanding of this situation, Bemis Bro. Bag Co. has run the advertisement "How'd You Like the State of Iowa as a Gift?" (shown on the opposite page) in Time and News-week magazines with a combined circulation of over 1,500,000.

You can spread this important message still farther by displaying poster-size, 2-color enlargements (22 x 17 inches) which we will send you without charge. All advertising is deleted from the poster. Send the coupon for as many as you can use.

BEMIS BRO. BAG CO.,
408-N Pine Street,
St. Louis 2, Missouri

We will display _____ copies of poster "How'd You Like the State of Iowa as a Gift?" Please send, no charge, to—

Name _____

Address _____

City & State _____

from storage whenever ready and this will make for a still more regular shipping volume from the mills and save an enormous present cost of bags and loading, in which the shortage of manpower is more seriously acute than in any other part of mine or mill.

The L. & N. R. R. is also giving serious consideration to putting into service covered hopper cars for bulk shipments, which will save the farmer users who can arrange to handle this equipment still more.

All the strikes which recently stirred the phosphate district have been amicably settled and everyone is joining in support of the armed forces, with some little interest afoot as to which political party could best do the job, but very little argument as to how.

CHICAGO

Fertilizer Organics Market Quiet. Sellers Not Inclined to Quote. Feed Materials in Ample Supply.

Exclusive Correspondence to "The American Fertilizer"

CHICAGO, July 10, 1944.

A quiet situation prevails locally in the organic market, with a fairly steady inquiry for fall and later deliveries. Sellers are still disinclined quoting for either prompt or futures, but it is possible this condition will be modified shortly.

In feeds, the producers now find supplies ample, but many back orders for the finished feed are unfilled caused by lack of labor.

Ceiling prices are well maintained:

High grade ground fertilizer tankage, \$3.85 to \$4.00 (\$4.68 to \$4.86 per unit N) and 10 cents; standard grades crushed feeding tankage, \$5.53 per unit ammonia (\$6.72 per unit N); blood, \$5.53 (\$6.72 per unit N); dry rendered tankage, \$1.25 per unit of protein, F. O. B. producing points.

CHARLESTON

New Elanket OPA Ceiling Order Issued. Nitrogenous Production Still Below Demand. Phosphate Rock Sold Up to Capacity.

Exclusive Correspondence to "The American Fertilizer"

CHARLESTON, July 10, 1944.

The OPA has just issued an order, giving in one order the ceiling prices on all fertilizer materials.

Organics.—There has not been much improvement in this situation. Some producers of nitrogenous are having difficulty allotting on the basis of 80 per cent of the buyer's previous base.

Bone Meal.—This material continues very scarce.

Blood.—Domestic is priced at \$5.53 per unit of ammonia (\$6.72 per unit N), f. o. b. Chicago. Feeders continue to take this material though the demand does not appear to be as pressing.

Phosphate Rock.—It has now become evident that some of the producers of phosphate rock have had to turn down additional orders for 1944.

Florida Phosphate Rock Ceiling Raised

An average increase of 20 cents a ton in producers' present maximum prices for Florida pebble phosphate rock was announced on July 3rd by the Office of Price Administration.

The increase (effective July 6, 1944) was granted by OPA following action of the National War Labor Board, with the approval of the Director of Economic Stabilization, ordering wage rate increases to most employees in the pebble phosphate rock mining industry in Florida. The amount of increase granted in producers' prices is the minimum amount necessary to keep all producers in operation, OPA said.

The increased cost of Florida phosphate rock to producers of superphosphate will require upward adjustment of prices for the latter. That adjustment will apply only at the wholesale level, OPA said, and will not be reflected in higher prices for superphosphate or mixed fertilizer sold to farmers.

Along with the increase in producers' prices for Florida pebble rock phosphate, OPA also announced a revision of the entire regulation covering phosphate rock, including Florida land pebble and hard phosphate rock and Tennessee brown phosphate rock. The revised regulation makes no changes in prices, except those previously mentioned, and other changes made are for the purpose of simplification and clarification.

Less Ammonium Nitrate for Fertilizers

The War Department has notified the War Production Board that shipments of ammonium nitrate for fertilizer use will be curtailed this fall and will entirely cease by December 1st. This action was made necessary by the increased munitions program for the balance of the year. The Commodity Credit Corporation still has supplies of ammonium nitrate for early delivery and the exact date of the start of the curtailment schedule has not been announced.

No changes in the fertilizer nitrogen program will be necessary as provision had been made for a possible shortage of ammonium nitrate. Supplies of nitrogen from other domestic sources and from increased imports from Chile will provide for even the larger tonnage of nitrogen fertilizers planned for the 1944-45 season.

Cotton Acreage Drops

The Crop Reporting Board estimates the acreage of cotton in cultivation in the United States on July 1st at 20,472,000 acres, which is 1,470,000 acres or 6.7 per cent less than last year, and 7,717,000 acres less than the 10-year (1933-42) average. Assuming 10-year average abandonment, an acreage of 20,081,000 acres is indicated for harvest in 1944.

Reduction in acreage from last year is indicated for all States except California, where acreage is increased 4 per cent, and in Oklahoma, Illinois, and Kentucky where acreages were reduced to an unusually low level last year as the result of floods.

Of the important cotton States, Georgia has the greatest percentage reduction with acreage 14 per cent below last year. In Louisiana and Alabama acreages are reduced 9 per cent. Texas, Arkansas, and Tennessee are down 7 per cent, North Carolina 6 per cent, Missis-



Trade Mark Registered

MAGNESIUM LIMESTONE

"It's a Dolomite"

American Limestone Company

Knoxville, Tenn.



International **CROP-PRODUCING FERTILIZER MATERIALS**

Will help you make the quality fertilizers which farmers need to do their job of producing more food for victory.



International **MINERALS & CHEMICAL CORPORATION**

General Offices • 20 North Wacker Drive • Chicago

Florida Pebble Phosphate Rock
68%—70%—72%—75%—77%

Tennessee Phosphate Rock
66%—68%—72%

Superphosphate
Multiple Superphosphate

Domestic Potash Salts

All Standard Grades of Potash
Including SUL-PO-MAG

(Sulphate of Potash-Magnesia)

Complete Fertilizers

PHOSPHATE • POTASH • FERTILIZER • CHEMICALS

sippi 5 per cent, Missouri 4 per cent, and South Carolina 3 per cent. Plantings of short staple cotton increased in New Mexico and Arizona, but these increases were more than offset by reduction in acreage of American Egyptian cotton.

The total acreage planted to American Egyptian cotton is estimated at 14,000 acres, which is only 10 per cent of the 141,700 acres planted last year. A negligible acreage is planted to Sea Island cotton this year.

The reductions in cotton acreage in 1944 are attributed partly to excessive and continued rainfall and low temperatures at seeding time, particularly in the southern part of the belt.

Also there were fewer laborers available for cotton chopping and harvesting which cut acreage as a whole or brought about a shift to crops requiring less hand labor. The reductions in cotton plantings appear to have been more pronounced on the larger farms, as many small farmers maintained or increased plantings except where the adverse weather prevented.

The Potash Problem in Illinois

(Continued from page 10)

actly the same way as I have just interpreted the potassium test. The accuracy is not as high as in the case of the potassium test, which is our most accurate one, but it is still well within the practical range. As with the potassium test, the phosphorus test gives the per cent yield and the superphosphate or rock phosphate requirements.

Used along with the potassium test, a balanced fertilizer recommendation which recognizes each crop's individual need for each nutrient with respect to the soil level of these nutrients becomes possible. This does not mean that each crop in the rotation receives the same ratio fertilizer. The ratio used will depend on the relative needs of the different crops. Once the rotation requirements are known, the fertilizers can be applied according to our best knowledge of methods of fertilizer application, a subject which will not be taken up here.

TABLE 4. POTASH—YIELD EXPECTATIONS AND ECONOMIC RETURNS FOR DIFFERENT METHODS OF TREATMENT ON A SOIL DEFICIENT IN BOTH P AND K BUT WHERE LEGUMES HAVE ALREADY BEEN USED

Crops in Rotation	Soil-test Values.....K test = 73 pounds P test = low +				
	Past yields with no P or K	Full P and K requirement added	½ P and K requirement added	Full K requirement added	Full P requirement added
Corn.....	Bu. 33	Bu. 63	Bu. 53	Bu. 55	Bu. 38
Oats.....	27	39	35	33	31
Legume hay.....	(0.8 tons)	(1.8 tons)	(1.5 tons)	(1.3 tons)	(1.1 tons)
Wheat.....	17	29	25	21	24
Gross value of all increases (4 years).....	None	\$41.10	\$27.40	\$22.10	\$13.80
Cost.....		\$14.22	\$ 7.11	\$ 8.50	\$ 5.72
Net.....		\$26.88	\$20.29	\$13.60	\$ 8.08

Values used—Wheat at \$1.00, Oats at \$0.30, Clover at \$10.00, and Corn at \$0.50.

Fertilizer Machinery AND Acidulating Equipment

BATCH MIXERS — PULVERIZERS — CAGE MILLS — SCREENS — SCALES
ELEVATORS, AND ALL OTHER EQUIPMENT FOR COMPLETE PLANTS

ATLANTA UTILITY WORKS - - EAST POINT, GA.

L.W. HUBER COMPANY
Brokers Fertilizer Materials — Room 903 —
170 BROADWAY
NEW YORK 7, N.Y.

NORFOLK BAG COMPANY

509 Flatiron Building
NORFOLK, VIRGINIA

Manufacturer of
**BURLAP BAGS
COTTON BAGS**

Printed or Unprinted

Prompt or future shipment
QUICK SERVICE

Write or wire for prices

Keyed SERVICE!

Fertilizer plants all over the country—large and small—state their needs and we meet them. Large stocks of seasoned materials and ample modern production facilities enable us to make prompt shipments.

TRIPLE SUPERPHOSPHATE

46 to 48% Available Phosphoric Acid

We also manufacture
HIGH-GRADE SUPERPHOSPHATE

U. S. Phosphoric Products

Division
TENNESSEE CORPORATION

Tampa, Florida

New York Office:
61 Broadway
Washington, D. C.
440 The Woodward Bldg.

Sales Agents:
Bradley & Baker
186 East 44th St.
New York, N. Y.

A Mark of



Reliability

SPECIFY THREE ELEPHANT



... WHEN BORON IS NEEDED TO CORRECT A DEFICIENCY OF THIS IMPORTANT SECONDARY ELEMENT

Agricultural authorities have shown that a lack of Boron in the soil can result in deficiency diseases which seriously impair the yield and quality of crops.

When Boron deficiencies are found, follow the recommendations of local County Agents or State Experiment Stations.

Information and references available on request.

AMERICAN POTASH & CHEMICAL CORPORATION

122 East 42nd ST., NEW YORK CITY

Pioneer Producers of Muriate of Potash in America

See Page 4



Now, I should like to point out certain additional uses to which the soil-test values can be put. For example, suppose a farmer has only a limited amount of money to invest in fertilizers. Should he use adequate potash on two fields or adequate phosphate on two fields instead of applying both nutrients to one field? Should he add half the total requirement for both nutrients to two fields instead of the full amounts to one field?

Such problems are readily worked out provided one has the potassium and phosphorus test values and a knowledge of the yields obtained in previous years.

cient nutrients are added there is a bonus for their use together. This bonus is readily calculated with the new method of soil-test interpretation presented in this paper.

Now, how accurately can test predictions be calculated? Could we, by testing a soil in 1935, have predicted what the increases would be for phosphorus or potassium or for both used together for the rotation of 1938 to 1941? The proof of the pudding lies in the eating.

Chart 1 shows just such a prediction for some of the experiment fields. The tests of soil samples taken in 1935 were used as a

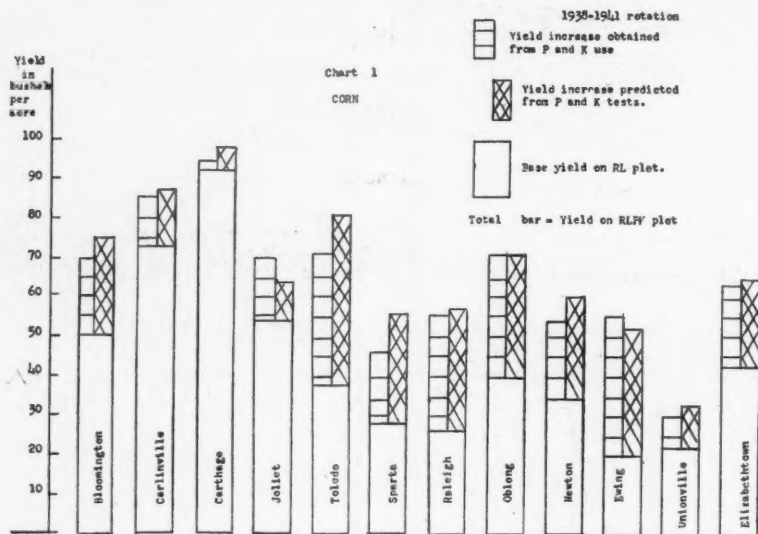


Table 4 gives an example of a soil deficient in both phosphorus and potassium where legumes are grown in the rotation. The results from various treatments are calculated as shown in columns 2, 3, 4, 5, and 6. The gross value of the increases is shown and the order of this value is also the order of the total profit per acre from fertilizer use. The complete treatment gives the most profit (\$26.88) but requires the highest initial investment (\$14.22). On the other hand, where only one-half the full requirements for both phosphorus and potassium are added, the gross value of the increases (\$27.40) is next in order of profit, although the initial investment per acre is only one-half as much (\$7.11).

Using the full requirement for either phosphorus alone or potassium alone gives lower returns. As is well known, where two defi-

basis for calculating what the combined increase for both phosphorus and potassium use should be, during the 1938-1941 rotation. The lower part of the bar shows the yield on the RL plot where residues, legumes, and limestone had been used. The left-

Stedman FERTILIZER PLANT EQUIPMENT

Dependable for Fifty Years

All-Steel	Pan Mixers—	Vibrating
Self-Contained	Wet Mixing	Screens
Fertilizer	Swing Hammer	Dust Weigh
Mixing Units	and Cage Type	Hoppers
Batch Mixers—	Tailings	Acid Weigh
Dry Batching	Pulverizers	Scales

STEDMAN'S FOUNDRY & MACHINE WORKS
MUNSTER, INDIANA, U. S. A. Founded 1884

Producers of SULPHUR

Large stocks carried at all times, permitting prompt shipments . . . Uniformly high purity of 99½% or better . . . Free of arsenic, selenium and tellurium.

TEXAS GULF SULPHUR CO.
 75 E. 45th Street New York 17, N.Y.
 Mine: Newgulf, Texas



Specializing in

Sulphate of Ammonia
 Low Grade Ammoniates
 Superphosphate
 Sulphuric Acid
 Bags

*Inquiries and offerings
 invited*

KEYSER BUILDING

ALEX. M. McIVER & SON

Official Brokers for

MILORGANITE

Specializing

Nitrogenous Materials
 Blood and Fertilizer Tankage
 Phosphate Rock
 Bone Meals
 Manganese Sulphate

**SOUTH AMERICAN DRY
 RENDERED TANKAGE**

**PEOPLES OFFICE BUILDING
 Charleston, S. C.**

hand side of the upper bar shows the increase in yield actually obtained, while the right-hand side shows the yield as calculated from the soil tests made on 1935 samples and the yield obtained on the RL plots.

The agreement between the increase obtained for phosphorus and potassium use and the increase as calculated from the soil-test data are certainly sufficiently good to warrant recommending this method as a practical method of soil nutrient diagnosis. For both phosphorus and potassium, it tells how deficient the soil is or the percentage deficiency; it gives the approximate fertilizer requirement; it calculates the approximate increases in yields which will be obtained in cases where past yield records are available or can be estimated; and it permits an economic interpretation of the relative use of phosphorus or potassium or both as used at adequate or less than adequate rates.

This means that we are in reality making a synthetic experiment field especially for each farmer. The results from this synthetic field apply more closely to each farmer's soil than do any actual experiment field results because they are for a soil testing exactly the same as the farm soil tests. The accuracy of this so-called synthetic field data is only limited by the accuracy of the experiment field data themselves and the chemical test values. That they both are highly accurate is one conclusion which may be drawn from Chart 1. Without accurate work on the experiment fields and accurate work in the laboratory, such a correlation as shown on Chart 1 would have been impossible. It demonstrates the value of scientific research in the solution of practical problems.

In conclusion, we can say that farmers, who are doing a good job of farming as far as rotations and other factors in soil management are concerned, can find in the soil tests a ready solution to their phosphorus and potash problems.

Cooperation Between Chemicals and Fertilizers Branch, Office of Materials and Facilities, and Industry

(Continued from page 8)

in the area of jurisdiction of respective Area Production Urgency Committees and Area Manpower Priority Committees, for appointment by the Administrator as an alternate to the representative of the Administrator on these committees. The most important point in this memorandum is that the War Food Administration will be represented on these important manpower committees. Also there

is the probability that the Field Men attached to the Chemicals and Fertilizers Branch may be appointed as alternates and will either be consulted or invited when technical problems arise involving your industry. Finally, an opportunity is afforded for conferences with our Office of Labor relative to the establishment of areas where WFA representatives is immediately needed.

Looking Forward

It is expected that WFO-5, covering the production and distribution of fertilizers, will be in the Federal Register this week. The approved grades are already known to most of you so there is no impediment in the way of your keeping busy with the production of the record quantity of fertilizers which will be needed for next year's crops. From present indications, the supply of fertilizer materials, nitrogen, phosphoric acid, and potash, will be greater than ever before in history. The total production of fertilizers will be about 13 million tons.

In concluding, I want to take this opportunity of voicing my personal appreciation, as well as the appreciation of my colleagues of the Chemicals and Fertilizers Branch, for the constructive cooperation which we have had from the fertilizer industry since the outbreak of the war. It appears that our most difficult problems have been solved. Any new difficulties that may arise in our joint efforts to serve agriculture should readily be susceptible of solution by continuation of our past method of operations. Inasmuch as we are all interested in concluding our wartime responsibilities in a manner justifying lasting pride, we are counting on your continued assistance. In behalf of the Office of Materials and Facilities I want to assure you of our cooperation and sympathetic understanding of your problems.

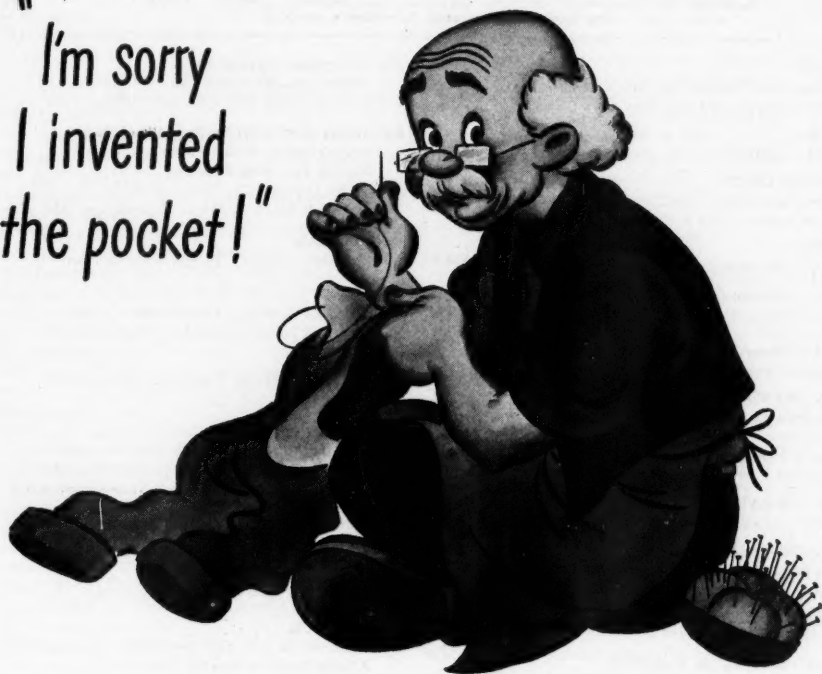
**SACKETT
EQUIPMENT**

for the Fertilizer Plant

**BATCH MIXERS • PULVERIZERS
SCREENS • BUCKET ELEVATORS
CONTINUOUS AMMONIATING EQUIPMENT
BASING, MIXING & BAGGING UNITS
COMPLETE FERTILIZER PLANTS**

THE A. J. SACKETT & SONS CO.
1701 S. HIGHLAND AVE., BALTIMORE, MD.

"I'm sorry
I invented
the pocket!"



IF I HAD KNOWN that some Americans would be using pockets to hold all the extra money they're making these days, I never would have invented them.

Pockets are good places to keep hands warm.

Pockets are good places to hold keys . . . and loose change for carfare and newspapers.

But pockets are no place for *any* kind of money except actual expense money these days.

The place—the *only* place—for money above living expenses is in War Bonds.

Bonds buy bullets for soldiers.

Bonds buy security for your old age.

Bonds buy education for your kids.

Bonds buy things you'll need later—that you can't buy now.

Bonds buy peace of mind—knowing that your money is in the fight.

Reach into the pocket I invented. Take out all that extra cash. Invest it in interest-bearing War Bonds.

You'll make me very happy if you do.

You'll be happy too.

WAR BONDS to Have and to Hold



BUYERS' GUIDE •

A CLASSIFIED INDEX TO ALL THE ADVERTISERS IN "THE AMERICAN FERTILIZER"



This list contains representative concerns in the Commercial Fertilizer Industry, including fertilizer manufacturers, machinery and equipment manufacturers, dealers in and manufacturers of commercial fertilizer materials and supplies, brokers, chemists, etc. For Alphabetical List of Advertisers, see page 33.



ACID BRICK

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

ACID EGGS

Chemical Construction Corp., New York City.

ACIDULATING UNITS

Chemical Construction Corp., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

AMMO-PHOS

American Cyanamid Co., New York City.

AMMONIA—Anhydrous

Barrett Division, The, Allied Chemical & Dye Corp., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Hydrocarbon Products Co., New York City.

AMMONIA LIQUOR

Barrett Division, The, Allied Chemical & Dye Corp., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Hydrocarbon Products Co., New York City.

AMMONIA OXIDATION UNITS

Chemical Construction Corp., New York City.

AMMONIATING EQUIPMENT

Sackett & Sons Co., The A. J., Baltimore, Md.

AMMONIUM NITRATE SOLUTIONS

Barrett Division, The, Allied Chemical & Dye Corp., New York City.

AUTOMATIC ELEVATOR TAKEUPS

Sackett & Sons Co., The A. J., Baltimore, Md.

BABBITT

Sackett & Sons Co., The A. J., Baltimore, Md.

BAGS AND BAGGING—Manufacturers

Bagpak, Inc., New York City.
Bemis Bro. Bag Co., St. Louis, Mo.
Norfolk Bag Co., Norfolk, Va.
St. Regis Paper Co., New York City.
Textile Bag Mfrs. Association, Chicago, Ill.
Union Bag & Paper Corporation, New York City.

BAGS—Cotton

Bemis Bro. Bag Co., St. Louis, Mo.
Norfolk Bag Co., Norfolk, Va.
Textile Bag Mfrs. Association, Chicago, Ill.

BAGS—Paper

Bagpak, Inc., New York City
Bemis Bro. Bag Co., St. Louis, Mo.
St. Regis Paper Co., New York City.
Union Bag & Paper Corporation, New York City.

BAGS (Waterproof)—Manufacturers

Bemis Bro. Bag Co., St. Louis, Mo.
St. Regis Paper Co., New York City.
Textile Bag Mfrs. Association, Chicago, Ill.
Union Bag & Paper Corporation, New York City.

BAGS—Dealers and Brokers

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

BAG CLOSING MACHINES

Bagpak Inc., New York City.
St. Regis Paper Co., New York City.

BAGGING MACHINES—For Filling Sacks

Atlanta Utility Works, East Point, Ga.
Bagpak, Inc., New York City.
St. Regis Paper Co., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

BAG PILERS

Link-Belt Company, Philadelphia, Chicago.

BEARINGS

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

BELT LACING

Sackett & Sons Co., The A. J., Baltimore, Md.

BELTING—Chain

Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

BELTING—Leather, Rubber, Canvas

Sackett & Sons Co., The A. J., Baltimore, Md.

BOILERS—Steam

Atlanta Utility Works, East Point, Ga.

BONE BLACK

American Agricultural Chemical Co., New York City
Armour Fertilizer Works, Atlanta, Ga.
Huber & Company, New York City.

BONE PRODUCTS

American Agricultural Chemical Co., New York City
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

BORAX AND BORIC ACID

American Potash and Chem. Corp., New York City.
Pacific Coast Borax Co., New York City.

BROKERS

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Dickerson Co., The, Philadelphia, Pa.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
Keim, Samuel L., Philadelphia, Pa.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

BUCKETS—Elevator

Link-Belt Company, Philadelphia, Chicago
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

A Classified Index to Advertisers in
"The American Fertilizer"

BUYERS' GUIDE

For an Alphabetical List of all the
Advertisers, see page 33

BUCKETS—For Hoists, Cranes, etc., Clam Shell, Orange Peel, Drag Line, Special; Electrically Operated and Multi Power

Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.

BURNERS—Sulphur

Chemical Construction Corp., New York City.

BURNERS—Oil

Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.

CABLEWAYS

Hayward Company, The, New York City.

CARBONATE OF AMMONIA

American Agricultural Chemical Co., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del

CARS—For Moving Materials

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CARTS—Fertilizer, Standard and Roller Bearing

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

CASTINGS—Acid Resisting

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.

CASTINGS—Iron and Steel

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CEMENT—Acid-Proof

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

CHAIN DRIVES—Silent

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHAINS AND SPROCKETS

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHAMBERS—Acid

Chemical Construction Corp., New York City
Fairlie, Andrew M., Atlanta, Ga.

CHEMICAL APPARATUS

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

CHEMICALS

American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Huber & Company, New York City.

CHEMICALS—Continued

International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Phosphate Mining Co., The, New York City.
Wellmann, William E., Baltimore, Md.

CHEMICAL PLANT CONSTRUCTION

Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHEMISTS AND ASSAYERS

Gascayne & Co., Baltimore, Md.
Shuey & Company, Inc., Savannah, Ga.
Stillwell & Gladding, New York City.
Wiley & Company, Baltimore, Md.

CLUTCHES

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CONCENTRATORS—Sulphuric Acid

Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

CONDITIONERS AND FILERS

American Limestone Co., Knoxville, Tenn
Dickerson Co., The, Philadelphia, Pa.
Phosphate Mining Co., The, New York City

CONTACT ACID PLANTS

Chemical Construction Corp., New York City

COPPER SULPHATE

Tennessee Chemical, Atlanta, Ga.

COTTONSEED PRODUCTS

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmalta, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

CRANES AND DERRICKS

Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

CYANAMID

American Agricultural Chemical Co., New York City
American Cyanamid Co., New York City.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Jett, Joseph C., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

DENS—Superphosphate

Chemical Construction Corp., New York City.
Stedman's Foundry and Mach. Works, Aurora, Ind.

Andrew M. Fairlie CHEMICAL ENGINEER

22 Marietta Street
Building ATLANTA, GA.

CABLE ADDRESS: "SULFACID ATLANTA"

SULPHURIC Acid Plants . . . Design, Construc-
tion, Equipment . . . Operation . . . Mills-
Packard Water-Cooled Acid Chambers, Gaillard
Acid-Cooled Chambers, Gaillard Acid Dispersers,
Contact Process Sulphuric Acid Plants.

A Classified Index to Advertisers in
"The American Fertilizer"

BUYERS' GUIDE

For an Alphabetical List of all the
Advertisers, see page 33

DISINTEGRATORS

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

DRYERS—Direct Heat

Sackett & Sons Co., The A. J., Baltimore, Md.

DRIVES—Electric

Link-Belt Company, Philadelphia, Chicago.

DUMP CARS

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

DUST COLLECTING SYSTEMS

Sackett & Sons Co., The A. J., Baltimore, Md.

ELECTRIC MOTORS AND APPLIANCES

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

ELEVATORS

Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

ELEVATORS AND CONVEYORS—Portable

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

ENGINEERS—Chemical and Industrial

Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

ENGINES—Steam

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

EXCAVATORS AND DREDGES—Drag Line and Cableway

Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Link Belt Speeder Corp., Chicago, Ill., and Cedar Rapids, Iowa.

FERTILIZER MANUFACTURERS

American Agricultural Chemical Co., New York City.
American Cyanamid Company, New York City.
Armour Fertilizer Works, Atlanta, Ga.
Farmers Fertilizer Company, Columbus, Ohio.
International Minerals and Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

FISH SCRAP AND OIL

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

FOUNDERS AND MACHINISTS

Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

GARBAGE TANKAGE

Wellmann, William E., Baltimore, Md.

GEARS—Machine Moulded and Cut

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

GEARS—Silent

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

GELATINE AND GLUE

American Agricultural Chemical Co., New York City.

GUANO

Baker & Bro., H. J., New York City.

HOISTS—Electric, Floor and Cage Operated, Portable

Hayward Company, The, New York City.

HOPPERS

Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

IMPORTERS, EXPORTERS

Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Wellmann, William E., Baltimore, Md.

IRON SULPHATE

Tennessee Corporation, Atlanta, Ga.

INSECTICIDES

American Agricultural Chemical Co., New York City.

LACING—Belt

Sackett & Sons Co., The A. J., Baltimore, Md.

LIMESTONE

American Agricultural Chemical Co., New York City.
American Limestone Co., Knoxville, Tenn.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

LOADERS—Car and Wagon, for Fertilizers

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Acid Making

Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.
Durrion Co., Inc., The, Dayton, Ohio.
Fairlie, Andrew M., Atlanta, Ga.
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Coal and Ash Handling

Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Elevating and Conveying

Atlanta Utility Works, East Point, Ga.
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Grinding and Pulverizing

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

A Classified Index to Advertisers in
"The American Fertilizer"

BUYERS' GUIDE

For an Alphabetical List of all the
Advertisers, see page 33

MACHINERY—Power Transmission

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Pumping

Atlanta Utility Works, East Point, Ga.
Duriron Co., Inc., The, Dayton, Ohio.

MACHINERY—Tankage and Fish Scrap

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MAGNETS

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MANGANESE SULPHATE

McIver & Son, Alex. M., Charleston, S. C.
Tennessee Corporation, Atlanta, Ga.

MIXERS

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

NITRATE OF SODA

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
Chilean Nitrate Sales Corp., New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

NITRATE OVENS AND APPARATUS

Chemical Construction Corp., New York City.

NITROGEN SOLUTIONS

Barrett Division, The, Allied Chemical & Dye Corp., New York City.

NITROGENOUS ORGANIC MATERIAL

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., Wilmington, Del.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Smith-Rowland Co., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

NOZZLES—Spray

Monarch Mfg. Works, Philadelphia, Pa.

PACKING—For Acid Towers

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

PANS AND POTS

Stedman's Foundry and Mach. Works, Aurora, Ind.

PHOSPHATE MINING PLANTS

Chemical Construction Corp., New York City.

PHOSPHATE ROCK

American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Coronet Phosphate Co., New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Phosphate Mining Co., The, New York City.
Ruhm, H. D., Mount Pleasant, Tenn.
Schmaltz, Jos. H., Chicago, Ill.
Southern Phosphate Corp., Baltimore, Md.
Virginia-Carolina Chemical Corp. (Mining Dept.), Richmond, Va.
Wellmann, William E., Baltimore, Md.

PIPE—Acid Resisting

Duriron Co., Inc., The, Dayton, Ohio.

PIPES—Chemical Stoneware

Chemical Construction Corp., New York City.

PIPES—Wooden

Stedman's Foundry and Mach. Works, Aurora, Ind.

PLANT CONSTRUCTION—Fertilizer and Acid

Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

POTASH SALTS—Dealers and Brokers

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

POTASH SALTS—Manufacturers

American Potash and Chem. Corp., New York City.
Potash Co. of America, New York City.
International Minerals & Chemical Corp., Chicago, Ill.
United States Potash Co., New York City.

PULLEYS AND HANGERS

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

PUMPS—Acid-Resisting

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

PYRITES—Brokers

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., New York City.
Wellmann, William E., Baltimore, Md.

QUARTZ

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

RINGS—Sulphuric Acid Tower

Chemical Construction Corp., New York City.

ROUGH AMMONIATES

Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

A Classified Index to Advertisers in
"The American Fertilizer"

BUYERS' GUIDE

For an Alphabetical List of all the
Advertisers, see page 33

SCALES—Including Automatic Bagging

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

SCRAPERS—Drag

Hayward Company, The, New York City.

SCREENS

Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

SEPARATORS—Air

Sackett & Sons Co., The A. J., Baltimore, Md.

SEPARATORS—Including Vibrating

Sackett & Sons Co., The A. J., Baltimore, Md.

SEPARATORS—Magnetic

Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

SHAFTING

Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

SHOVELS—Power

Link-Belt Company, Philadelphia, Chicago.
Link-Belt Speeder Corporation, Chicago, Ill., and Cedar
Rapids, Iowa.
Sackett & Sons Co., The A. J., Baltimore, Md.

SPRAYS—Acid Chambers

Monarch Mfg. Works, Inc., Philadelphia, Pa.

SPROCKET WHEELS (See Chains and Sprockets)

STACKS

Sackett & Sons Co., The A. J., Baltimore, Md.

SULPHATE OF AMMONIA

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New
York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Hydrocarbon Products Co., New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

SULPHUR

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Freeport Sulphur Co., New York City.
Texas Gulf Sulphur Co., New York City.

SULPHURIC ACID

American Agricultural Chemical Co., New York City
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.

SULPHURIC ACID—Continued

U. S. Phosphoric Products Division, Tennessee Corp.,
Tampa, Fla.
Wellmann, William E., Baltimore, Md.

SUPERPHOSPHATE

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
U. S. Phosphoric Products Division, Tennessee Corp.,
Tampa, Fla.
Wellmann, William E., Baltimore, Md.

SUPERPHOSPHATE—Concentrated

Armour Fertilizer Works, Atlanta, Ga.
International Minerals & Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp.
Tampa, Fla.

SYPHONS—For Acid

Monarch Mfg. Works, Inc., Philadelphia, Pa.

TALLOW AND GREASE

American Agricultural Chemical Co., New York City.

TANKAGE

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Smith-Rowland, Norfolk, Va.
Wellmann, William E., Baltimore, Md.

TANKAGE—Garbage

Huber & Company, New York City.

TANKS

Sackett & Sons Co., The A. J., Baltimore, Md.

TILE—Acid-Proof

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

TOWERS—Acid and Absorption

Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

UNLOADERS—Car and Boat

Hayward Company, The, New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

UREA

DuPont de Nemours & Co., E. I., Wilmington, Del.

UREA-AMMONIA LIQUOR

DuPont de Nemours & Co., E. I., Wilmington, Del.

VALVES—Acid-Resisting

Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

WHEELBARROW (See Carts)

ZINC SULPHATE

Tennessee Corporation, Atlanta, Ga.

ALPHABETICAL LIST OF ADVERTISERS

For Classified Index, see pages 28 to 32, inclusive

- American Agricultural Chemical Co., New York City..... 3
 American Cyanamid Co., New York City.—
 American Limestone Co., Knoxville, Tenn..20
 American Potash and Chemical Corp., New York City.....4, 23
 Armour Fertilizer Works, Atlanta, Ga....16
 Ashcraft-Wilkinson Co., Atlanta, Ga. Front Cover
 Atlanta Utility Works, East Point, Ga....22
 Bagpak, Inc., New York City.....—
 Baker & Bro., H. J., New York City.....—
 Barrett Division, Allied Chemical & Dye Corporation, New York City.....—
 Bemis Bro. Bag Co., St. Louis, Mo....18, 19
 Bradley & Baker, New York City.....14
 Charlotte Chemical Lab., Charlotte, N. C.—
 Chemical Construction Corp., New York City.....—
 Chilean Nitrate Educational Bureau, New York City.....34
 Dickerson Co., The, Philadelphia, Pa....—
 Dougherty, Jr., E., Philadelphia, Pa....33
 Du Pont de Nemours & Co., E. I., Wilmington, Del.....—
 Duriron Company, Dayton, Ohio.....—
 Fairlie, Andrew M., Atlanta, Ga.....29
 Farmers Fertilizer Co., Columbus, Ohio..34
 Freeport Sulphur Co., New York City....—
 Gascoyne & Co., Inc., Baltimore, Md....34
 Hayward Company, The, New York City..34
 Huber Co., L. W., New York City.....22
 Hydrocarbon Products Co., New York City.17
 International Minerals & Chemical Corporation, Chicago, Ill.....21
 Jeffrey Manufacturing Co., The, Columbus, Ohio.....—
 Jett, Joseph C., Norfolk, Va.....—
 Keim, Samuel D., Philadelphia, Pa.....33
 Link-Belt Company, Chicago, Ill.....—
 McIver & Son, Alex. M., Charleston, S. C..25
 Monarch Mfg. Works, Inc., Philadelphia, Pa.....34
 Norfolk Bag Co., Norfolk, Va.....23
 Pacific Coast Borax Co., New York City.—
 Phosphate Mining Co., The, New York City.....4
 Polk Co., R. L., Detroit, Mich.....—
 Potash Co. of America, New York City. 3rd Cover
 Ruhm, H. D., Columbia, Tenn.....34
 Sackett & Sons Co., The A. J., Baltimore, Md.....26
 Schmaltz, Jos. H., Chicago, Ill.....34
 Shuey & Company, Inc., Savannah, Ga..34
 Smith-Rowland Co., Norfolk, Va.....—
 Southern Phosphate Corp., New York City.—
 Stedman's Foundry and Machine Works, Aurora, Ind.....24
 Stillwell & Gladding, New York City....34
 St. Regis Paper Co., New York City Back Cover
 Synthetic Nitrogen Products Co., New York City.....—
 Tennessee Corporation, Atlanta, Ga.....—
 Texas Gulf Sulphur Co., New York City..25
 Textile Bag Mfrs. Association, Chicago, Ill.—
 Union Bag & Paper Corp., New York City.—
 U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.....23
 United States Potash Co., New York City 2nd Cover
 Virginia-Carolina Chemical Corp., Mining Dept., Richmond, Va.....—
 Wellmann, William E., Baltimore, Md....25
 Wiley & Company, Inc., Baltimore, Md..34

COTTON HULL ASHES

*A Source of Potash for
Tobacco Growers*

SAMUEL D. KEIM

(SINCE 1898)

**1343 ARCH STREET
PHILADELPHIA 7, PA.**

MONARCH SPRAYS

This is our Fig. 645 Nozzle. Used for Scrubbing Acid Phosphate Gases. Made for "full" or "hollow" cone in Brass and "Everdur." We also make "Non-Clog" Nozzles in Brass and Steel, and Stoneware Chamber Sprays now used by nearly all chamber spray sulphuric acid plants.

CATALOG 6-C

MONARCH MFG. WORKS, INC.

Westmoreland and Emory Sts., Philadelphia, Pa.

farm for
VICTORY
 NATURAL CHILEAN NITRATE

SHUEY & COMPANY, Inc.

Specialty: Analysis of Fertilizer Materials and Phosphate Rock. Official Chemists for both Florida Hard Rock Phosphate and Pebble Phosphate Export Associations. Official Weigher and Sampler for the National Cottonseed Products Association at Savannah; also Official Chemists for National Cottonseed Products Association.

115 E. BAYSTREET, SAVANNAH, GA.

Stillwell & Gladding

Established 1868

WE MAKE ANALYSES OF
ALL KINDS

130 Cedar Street : : NEW YORK

WILEY & COMPANY, Inc.

Analytical and Consulting
Chemists

BALTIMORE, MD.

HAYWARD BUCKETS

Use this Hayward Class "K" Clam Shell for severe superphosphate digging and handling.

THE HAYWARD CO., 202 Fulton St., New York

**GASCOYNE & CO., INC.**

Established 1887

Chemists and Assayers

Public Weighers and Samplers

27 South Gay Street - BALTIMORE, MD.

The Farmers Fertilizer Co.

Manufacturers

COMPLETE FERTILIZERS**BULK SUPERPHOSPHATE****SULPHURIC ACID**

Acid plant capacity, 45,000 tons. Fertilizer plant capacity, 50,000 ton
 Get in touch with us COLUMBUS, OHIO

H. D. RUHM

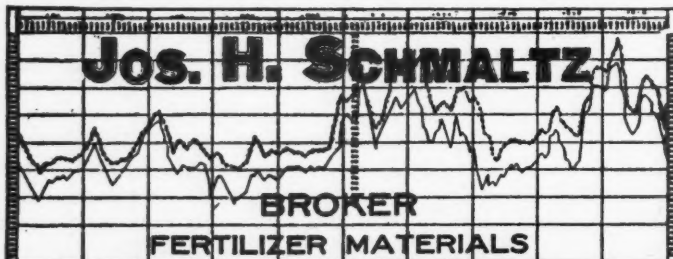
Phosphate Consultant

305 W. 7th Street
 COLUMBIA TENNESSEE

Knowledge OF AGRICULTURAL
 CHEMISTRY, SOILS,
 MANURES, etc., is essential to manufacturers of
 Commercial Fertilizers :: Books covering these
 subjects may be obtained from

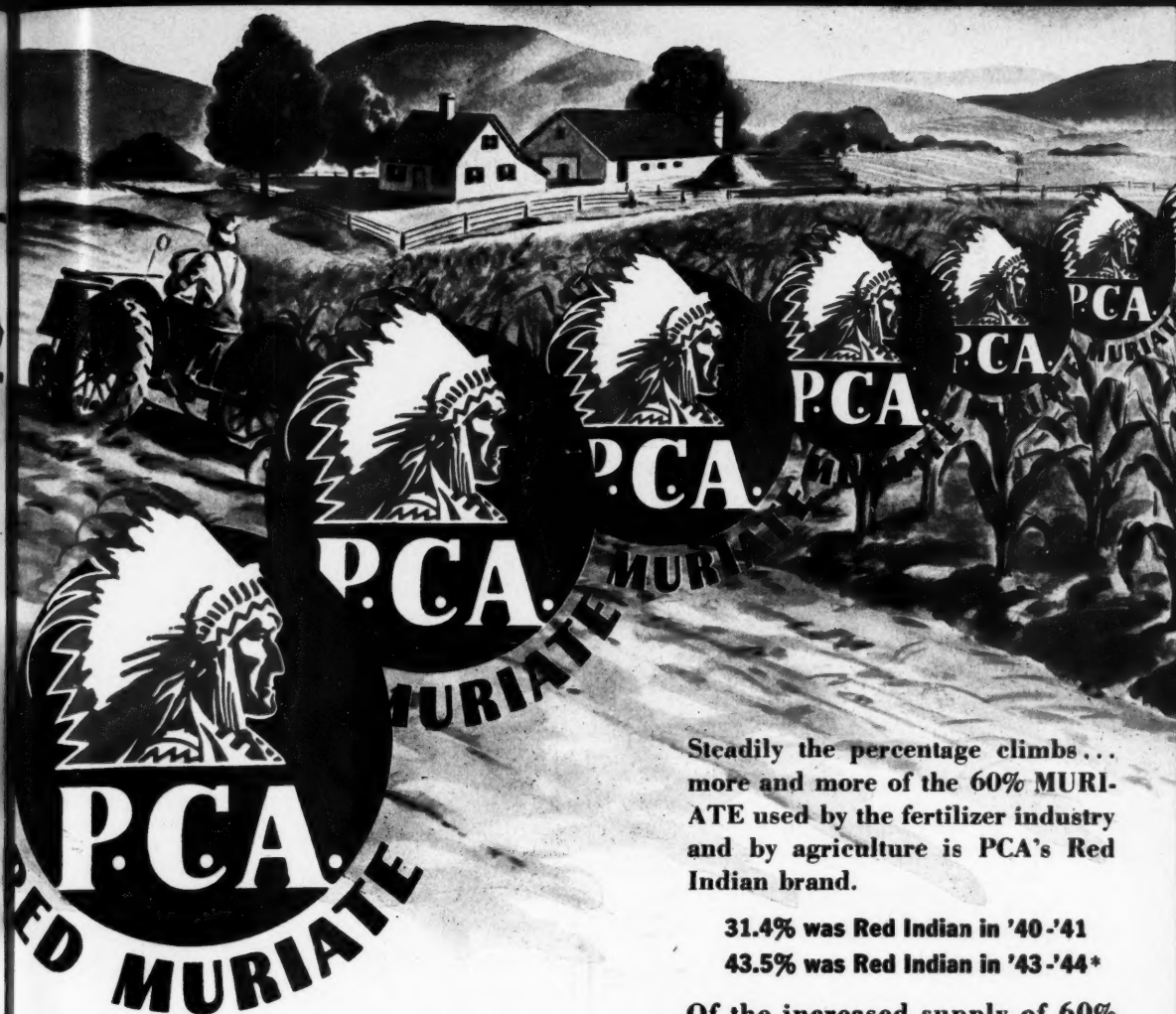
WARE BROS COMPANY
 1330 Vine St., Philadelphia

Tankage
 Blood
 Bone
 All
 Ammoniates



327
 South
 La Salle
 Street
 CHICAGO

OFFICIAL BROKER FOR MILORGANITE



**This Trade Mark
GROWS
MORE and MORE
IMPORTANT**

Steadily the percentage climbs... more and more of the 60% MURIATE used by the fertilizer industry and by agriculture is PCA's Red Indian brand.

31.4% was Red Indian in '40-'41

43.5% was Red Indian in '43-'44*

Of the increased supply of 60% MURIATE going to agriculture since imports stopped, 73% has been supplied by PCA alone.

NOW—for '44-'45, PCA promises much more Red Indian 60% MURIATE, through the W. P. B. allocation pool, for the fertilizer industry and the farmer.

As we've said in these advertisements for many months...PCA's Red Indian is a trade mark to tie to—now and for the vital POST-WAR DAYS AHEAD!

*estimated



POTASH COMPANY of AMERICA

CARLSBAD, NEW MEXICO

GENERAL SALES OFFICE 50 Broadway, New York, N. Y. • SOUTHERN SALES OFFICE...Mortgage Guarantee Building, Atlanta, Ga.





"DELIVERING THE GOODS"

FOR
VICTORY

Many of the chemicals used for making explosives for land, sea and air forces are packaged in Multiwall Paper Bags. The finest industrial peacetime package has become the essential wartime package.

Multiwall Paper Bags are required for industrial shipments of food products, chemicals, fertilizers, and construction materials — for domestic use and overseas to our armed forces and civilian populations of allied nations and occupied countries.



MULTIPLY PROTECTION • MULTIPLY SALEABILITY

ST. REGIS PAPER COMPANY

TAGGART CORPORATION • THE VALVE BAG COMPANY

NEW YORK 17: 230 Park Ave. CHICAGO 1: 230 No. Michigan Ave.

Baltimore 2: 2601 O'Sullivan Building San Francisco 4: 1 Montgomery St

Boston, Mass.

Birmingham, Ala.

Dallas, Tex.

Denver, Colo.

Los Angeles, Calif.

New Orleans, La.

Franklin, Va.

Seattle, Wash.

Nazareth, Pa.

Cledo, Ohio

IN CANADA

BATES VALVE BAG CO., LTD.

Montreal, Quebec

Vancouver, British Columbia

